

REMARKS

Allowable Subject Matter

The Examiner stated that claims 17, 19, 33-53, and 73-80 are allowed.

The Examiner stated further that claims 3, 5-13, 40, and 56-61 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicants appreciate the Examiner's indication of allowable subject matter in claims 3, 5-13, 40, and 56-61, but holds any amendment in abeyance because it is believed that all claims in examination are allowable as explained below.

Claim Rejections - 35 USC §102

Claims 1, 4, 18, and 54 are rejected under 35 U.S.C. §102(b) as being anticipated by Armstrong (U.S. Patent No. 4,381,546, hereinafter "Armstrong").

Regarding claims 1 and 54, the Examiner states in the Office Action of 5/18/07 (hereinafter the "Office Action"):

"Armstrong teaches a device for detecting impairments in a digital quadrature amplitude modulated signal comprising:
a phase noise detector (5C) comprising;"

Applicants respectfully disagree because Armstrong FIG. 5C is labeled "PHASE JITTER". Applicants respectfully submit that Armstrong FIG. 5B, which is labeled "NOISE", does not show a phase noise detector but only an example of what Armstrong FIG. 5A-F indicates are "IMPAIRMENTS WITH RESPECT TO ROTATED EYE".

The Examiner states in the Office Action:

"[Armstrong teaches a device for detecting impairments in a digital quadrature amplitude modulated signal comprising:]

...

a sorter (see col. 3, lines 44-68);" [insertion and deletion for clarity]

Applicants respectfully disagree because no sorter is disclosed in Armstrong col. 3, lines 44-68, which states:

“The calculating means provides several functions. ...

... The calculating means uses this negative transition to read the first bit of X and Y. ...the calculating means is capable of accumulating digital words which correspond to the values of the X and Y components of the eye.”
[underlining and deletions for clarity]

The Examiner states in the Office Action:

“[Armstrong teaches a device for detecting impairments in a digital quadrature amplitude modulated signal comprising:]

...

a rotator coupled to the sorter (see col. 4, lines 5-6);” [insertion and deletion for clarity]

Applicants respectfully disagree because no rotator coupled to a sorter is disclosed in Armstrong col. 4, lines 5-6, which states:

“...each point of the eye diagram is rotated as shown in FIG. 4.”
[deletion for clarity]

The Examiner states in the Office Action:

“[Armstrong teaches a device for detecting impairments in a digital quadrature amplitude modulated signal comprising:]

...

a comparator (see col. 4, line 18-21) coupled to the rotator;” [insertion and deletion for clarity]

Applicants respectfully disagree because no comparator is disclosed in Armstrong col. 4, lines 18-21, which states:

“Once the points are rotated from the X and Y axis to what has been defined as the C and D axis, line impairments may be readily distinguished from one another by means of statistical properties on the C and D axes.”
[underlining for clarity]

The Examiner states in the Office Action:

“[Armstrong teaches a device for detecting impairments in a digital quadrature amplitude modulated signal comprising:]

...

a compression detector (5A);” [insertion and deletion for clarity]

Applicants respectfully disagree because no compression detector is disclosed in Armstrong FIG. 5A, which is titled “FREQUENCY OFFSET”.

The Examiner states in the Office Action:

“[Armstrong teaches a device for detecting impairments in a digital quadrature amplitude modulated signal comprising:]

...

an interference detector (5B);” [insertion and deletion for clarity]

Applicants respectfully disagree because no compression detector is disclosed in Armstrong FIG. 5B, which is titled “HARMONIC DISTORTION”.

Based on the above, it is respectfully submitted that claims 1, 4, 18, and 54 are allowable under 35 U.S.C. §102(b) as not being anticipated by Armstrong because:

“Anticipation requires the disclosure in a single prior art reference disclosure of each and every element of the claim under consideration.” W.L. Gore & Assocs. v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303, 313 (Fed. Cir. 1983) (citing Soundsciber Corp. v. United States, 360 F.2d 954, 960, 148 USPQ 298, 301 (Ct. Cl.), *adopted*, 149 USPQ 640 (Ct. Cl. 1966)), *cert. denied*, 469 U.S. 851 (1984). Carella v. Starlight Archery, 804 F.2d 135, 138, 231 USPQ 644, 646 (Fed. Cir.), *modified on reh’g*, 1 USPQ 2d 1209 (Fed. Cir. 1986); RCA Corp. v. Applied Digital Data Sys., Inc., 730 F.2d 1440, 1444, 221 USPQ 385, 388 (Fed. Cir. 1984).

The Examiner continues in the Office Action:

“[Armstrong teaches a device for detecting impairments in a digital quadrature amplitude modulated signal comprising:]

...

a constellation storage coupled to the phase noise detector, the compression detector, and the interference detector. Although the constellation storage is not shown its presence is easily inferred because in order to compare the rotated signal points to the ideal signal points, "a constellation storage" must be present to prestore the ideal signal points such as shown in Fig.3A.” [insertion, deletion, and underlining for clarity]

Applicants respectfully disagree because there is no disclosure in Armstrong that a comparison of rotated signal points to the ideal signal points occurs. Instead, Armstrong states in col. 4, lines 18-21, quoted above, that after points are rotated, line impairments are distinguished by statistical properties.

If the Examiner maintains his position regarding the above, it must be based on the Examiner’s personal knowledge because there is no disclosure in Armstrong to support the Examiner’s position. Applicants respectfully request an Examiner Affidavit disclosing the Examiner’s personal knowledge regarding this limitation pursuant to 37 CFR §1.104(d)(2) (2002):

“When a rejection in an application is based on facts within the personal knowledge of an employee of the Office, the data shall be as specific as possible and the reference must be supported, when called for by the applicant, by the affidavit of such employee, and such affidavit shall be subject

to contradiction or explanation by the affidavits of the applicant and other persons.”

Regarding claims 4 and 18, the Examiner states:

“See col. 4, lines 7-13 for the recited vector. Specifically, a vector utilizing a matrix of $(1-j1)$, $-1-j1$, $-1+j1$ and $1+j1$, which are in fact cosine and sine matrix is multiplied to received signal points.”

Applicants respectfully disagree because Armstrong does not disclose rotating a vector using a matrix but rotating a point by an ideal phase angle as stated in Armstrong col. 4, lines 7-13:

“If a receiver point is determined to be in quadrant 1, its complex value $(X+jY)$ is multiplied by $(1-j1)$ to yield $(X+Y+jY-jX)$. This would reduce to $(2+j0)$ if X and Y both equal 1. Similarly, points in quadrants II, III and IV would be multiplied respectively by $(-1-j1)$, $(-1+j1)$, and $(1+j1)$ to obtain the desired rotation of the present invention. That is, each point is rotated by an ideal phase angle determined by the ideal value of the received point and selected so that the rotated point has its nominally maximum component on the real axis.” [underlining for clarity]

Based on the above, it is respectfully submitted that claims 4 and 18 are allowable under 35 U.S.C. §102(b) as not being anticipated by Armstrong because:

“Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, *arranged as in the claim.*” [emphasis added] *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.* (730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1984)(citing *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 220 USPQ 193 (Fed. Dir. 1983))).

Claim Rejections - 35 USC §103

Claims 14, 62, and 70 are rejected under 35 U.S.C. §103(a) as being unpatentable over Armstrong (U.S. Patent No. 4,381,546, hereinafter “Armstrong”).

Regarding claims 14, 62, and 70, the Examiner states:

“Armstrong fails to teach that the interference detector (Fig.5A) comprises an error calculator, a distribution chart and a data peak detector. But Armstrong teaches comparing statistical properties of constellations and an error calculator, a distribution chart and a data peak detector would have been

obviously included in the interference detector since these are well known parameters used in statistical analysis.”

Applicants respectfully submit that the Examiner previously referred to Armstrong FIG. 5A as a “compression detector” and now refers to it as an “interference detector”. This would be a prohibited double inclusion of elements. However, in any event, Armstrong FIG. 5A is neither as indicated by its title “FREQUENCY OFFSET”.

Based on the above, it is respectfully submitted that claims 14, 62, and 70 are allowable under 35 U.S.C. §103(a) as being patentable over Armstrong because:

“[T]he prior art reference (or references when combined) must teach or suggest **all** the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant’s disclosure.” [Bold for clarity] *In re Vaack*, 947 F2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)

Response to Arguments

The Examiner stated that Applicants’ arguments with respect to claims 1 and 54 have been considered but are moot in view of the new ground(s) of rejection.

The new ground(s) of rejection have been traversed and are believed to be overcome.

The Examiner stated further that the rejection of claims 5, 6, 7, 8, 9, 10, 12, 19, 39, 40, 49, 54, 56, 57, 59, 60, 61, 75, and 78 under 35 USC §112, second paragraph is withdrawn in light of the remarks which establishes that the definition described in the specification should be given to the claimed elements.

Applicants appreciate this withdrawal.

Conclusion

In view of the above, it is submitted that the claims are in condition for allowance and reconsideration of the rejections is respectfully requested. Allowance of claims 1, 3-14, 17-19, 33-54, 56-62, 70, and 73-80 at an early date is solicited.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including any extension of time fees, to Deposit Account No. 50-0374 and please credit any excess fees to such deposit account.

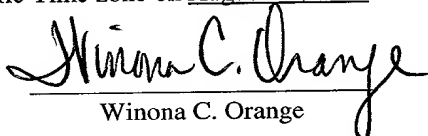
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